

#14  
SEP 08 2003

TECH



1600

## RAW SEQUENCE LISTING

PATENT APPLICATION: US/09/830,026B

DATE: 08/28/2003

TIME: 10:39:12

Input Set : A:\UOK532.ST25.txt

Output Set: N:\CRF4\08282003\I830026B.raw

3 <110> APPLICANT: University of Kansas Center for Research  
4 Walter Reed Army Institute for Research  
6 <120> TITLE OF INVENTION: METHODS FOR THE PRODUCTION OF PURIFIED INVASIN PROTEIN AND  
USE THEREOF  
8 <130> FILE REFERENCE: UOK 5320.1  
C--> 10 <140> CURRENT APPLICATION NUMBER: US/09/830,026B  
C--> 11 <141> CURRENT FILING DATE: 2001-10-20  
13 <150> PRIOR APPLICATION NUMBER: PCT/US99/24931  
14 <151> PRIOR FILING DATE: 1999-10-21  
16 <160> NUMBER OF SEQ ID NOS: 18  
18 <170> SOFTWARE: PatentIn version 3.1  
20 <210> SEQ ID NO: 1  
21 <211> LENGTH: 409  
22 <212> TYPE: PRT  
23 <213> ORGANISM: Salmonella typhimurium  
25 <400> SEQUENCE: 1  
27 Met Leu Ile Ser Asn Val Gly Ile Asn Pro Ala Ala Tyr Leu Asn Asn  
28 1 5 10 15  
31 His Ser Val Glu Asn Ser Ser Gln Thr Ala Ser Gln Ser Val Ser Ala  
32 20 25 30  
35 Lys Asp Ile Leu Asn Ser Ile Gly Ile Ser Ser Ser Lys Val Ser Asp  
36 35 40 45  
39 Leu Gly Leu Ser Pro Thr Leu Ser Ala Pro Ala Pro Gly Val Leu Thr  
40 50 55 60  
43 Gln Thr Pro Gly Thr Ile Thr Ser Ser Leu Lys Ala Ser Ile Gln Asn  
44 65 70 75 80  
47 Thr Asp Met Asn Gln Asp Leu Asn Ala Leu Ala Asn Asn Val Thr Thr  
48 85 90 95  
51 Lys Ala Asn Glu Val Val Gln Thr Gln Leu Arg Glu Gln Gln Ala Glu  
52 100 105 110  
55 Val Gly Lys Phe Phe Asp Ile Ser Gly Met Ser Ser Ser Ala Val Ala  
56 115 120 125  
59 Leu Leu Ala Ala Ala Asn Thr Leu Met Leu Thr Leu Asn Gln Ala Asp  
60 130 135 140  
63 Ser Lys Leu Ser Gly Lys Leu Ser Leu Val Ser Phe Asp Ala Ala Lys  
64 145 150 155 160  
67 Thr Thr Ala Ser Ser Met Met Arg Glu Gly Met Asn Ala Leu Ser Gly  
68 165 170 175  
71 Ser Ile Ser Gln Ser Ala Leu Gln Leu Gly Ile Thr Gly Val Gly Ala  
72 180 185 190  
75 Lys Leu Glu Tyr Lys Gly Leu Gln Asn Glu Arg Gly Ala Leu Lys His  
76 195 200 205  
79 Asn Ala Ala Lys Ile Asp Lys Leu Thr Thr Glu Ser His Ser Ile Lys  
80 210 215 220

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83 Asn Val Leu Asn Gly Gln Asn Ser Val Lys Leu Gly Ala Glu Gly Val  
84 225 230 235 240  
87 Asp Ser Leu Lys Ser Leu Asn Ile Arg Lys Pro Val Pro Met Arg Arg  
88 245 250 255  
91 Lys Ile Leu Met Met Arg Arg Leu Asn Leu Met Pro Glu Pro Ala Pro  
92 260 265 270  
95 Arg Lys Val Trp Val Leu Lys Thr Val Ile Asn Lys Val Ser Leu Asn  
96 275 280 285  
99 Ile Tyr Ile Leu Ser Lys Arg Leu Glu Ser Val Glu Ser Asp Ile Arg  
100 290 295 300  
103 Leu Glu Gln Asn Tyr Met Asp Ile Thr Arg Ile Asp Ser Ala Gln Asp  
104 305 310 315 320  
107 Ala Asp Asp Gly Arg Ser Asp Tyr Glu Glu Leu Gly His Gly Arg Trp  
108 325 330 335  
111 Tyr Cys Arg Gly Val Arg Ala Val Arg Arg Tyr Ser Gly Asn Val Ser  
112 340 345 350  
115 Glu Gln Gln Ile Ser Gln Val Asn Asn Arg Val Ala Ser Thr Ala Ser  
116 355 360 365  
119 Asp Glu Ala Arg Glu Ser Ser Arg Lys Ser Thr Ser Leu Ile Gln Glu  
120 370 375 380  
123 Met Leu Lys Thr Met Glu Ser Ile Asn Gln Ser Lys Ala Ser Ala Leu  
124 385 390 395 400  
127 Ala Ala Ile Ala Gly Asn Ile Arg Ala  
128 405  
131 <210> SEQ ID NO: 2  
132 <211> LENGTH: 382  
133 <212> TYPE: PRT  
134 <213> ORGANISM: Shigella flexneri  
136 <400> SEQUENCE: 2  
138 Met Leu Gln Lys Gln Phe Cys Asn Lys Leu Leu Leu Asp Thr Asn Lys  
139 1 5 10 15  
142 Glu Asn Val Met Glu Ile Gln Asn Thr Lys Pro Thr Gln Thr Leu Tyr  
143 20 25 30  
146 Thr Asp Ile Ser Thr Lys Gln Thr Gln Ser Ser Ser Glu Thr Gln Lys  
147 35 40 45  
150 Ser Gln Asn Tyr Gln Gln Ile Ala Ala His Ile Pro Leu Asn Val Gly  
151 50 55 60  
154 Lys Asn Pro Val Leu Thr Thr Leu Asn Asp Asp Gln Leu Leu Lys  
155 65 70 75 80  
158 Leu Ser Glu Gln Val Gln His Asp Ser Glu Ile Ile Ala Arg Leu Thr  
159 85 90 95  
162 Asp Lys Lys Met Lys Asp Leu Ser Glu Met Ser His Thr Leu Thr Pro  
163 100 105 110  
166 Glu Asn Thr Leu Asp Ile Ser Ser Leu Ser Ser Asn Ala Val Ser Leu  
167 115 120 125  
170 Ile Ile Ser Val Ala Val Leu Leu Ser Ala Leu Arg Thr Ala Glu Thr  
171 130 135 140  
174 Lys Leu Gly Ser Gln Leu Ser Leu Ile Ala Phe Asp Ala Thr Lys Ser  
175 145 150 155 160

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178 Ala Ala Glu Asn Ile Val Arg Gln Gly Leu Ala Ala Leu Ser Ser Ser  
179 165 170 175  
182 Ile Thr Gly Ala Val Thr Gln Val Gly Ile Thr Gly Ile Gly Ala Lys  
183 180 185 190  
186 Lys Thr His Ser Gly Ile Ser Asp Gln Lys Gly Ala Leu Arg Lys Asn  
187 195 200 205  
190 Leu Ala Thr Ala Gln Ser Leu Glu Lys Glu Leu Ala Gly Ser Lys Leu  
191 210 215 220  
194 Gly Leu Asn Lys Gln Ile Asp Thr Asn Ile Thr Ser Pro Gln Thr Asn  
195 225 230 235 240  
198 Ser Ser Thr Lys Phe Leu Gly Lys Asn Lys Leu Ala Pro Asp Asn Ile  
199 245 250 255  
202 Ser Leu Ser Thr Glu His Lys Thr Ser Leu Ser Ser Pro Asp Ile Ser  
203 260 265 270  
206 Leu Gln Asp Lys Ile Asp Thr Gln Arg Arg Thr Tyr Glu Leu Asn Thr  
207 275 280 285  
210 Leu Ser Ala Gln Gln Lys Gln Asn Ile Gly Arg Ala Thr Met Glu Thr  
211 290 295 300  
214 Ser Ala Val Ala Gly Asn Ile Ser Thr Ser Gly Gly Arg Tyr Ala Ser  
215 305 310 315 320  
218 Ala Leu Glu Glu Glu Gln Leu Ile Ser Gln Ala Ser Ser Lys Gln  
219 325 330 335  
222 Ala Glu Glu Ala Ser Gln Val Ser Lys Glu Ala Ser Gln Ala Thr Asn  
223 340 345 350  
226 Gln Leu Ile Gln Lys Leu Leu Asn Ile Ile Asp Ser Ile Asn Gln Ser  
227 355 360 365  
230 Lys Asn Ser Ala Ala Ser Gln Ile Ala Gly Asn Ile Arg Ala  
231 370 375 380  
234 <210> SEQ ID NO: 3  
235 <211> LENGTH: 4  
236 <212> TYPE: DNA  
237 <213> ORGANISM: Artificial Sequence  
239 <220> FEATURE:  
240 <223> OTHER INFORMATION: NdeI restriction site  
242 <400> SEQUENCE: 3  
243 gaga 4  
246 <210> SEQ ID NO: 4  
247 <211> LENGTH: 29  
248 <212> TYPE: DNA  
249 <213> ORGANISM: Artificial Sequence  
251 <220> FEATURE:  
252 <223> OTHER INFORMATION: PCR Primer  
254 <400> SEQUENCE: 4  
255 gagacatatg ttatcagagc aggttcagc 29  
258 <210> SEQ ID NO: 5  
259 <211> LENGTH: 30  
260 <212> TYPE: DNA  
261 <213> ORGANISM: Artificial Sequence  
263 <220> FEATURE:

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264 <223> OTHER INFORMATION: PCR Primer  
266 <400> SEQUENCE: 5  
267 gagaggatcc ttaagctcg aatgttaccag 30  
270 <210> SEQ ID NO: 6  
271 <211> LENGTH: 27  
272 <212> TYPE: DNA  
273 <213> ORGANISM: Artificial Sequence  
275 <220> FEATURE:  
276 <223> OTHER INFORMATION: PCR Primer  
278 <400> SEQUENCE: 6  
279 gagacatatg ttgcaaaagc aatttg 27  
282 <210> SEQ ID NO: 7  
283 <211> LENGTH: 32  
284 <212> TYPE: DNA  
285 <213> ORGANISM: Artificial Sequence  
287 <220> FEATURE:  
288 <223> OTHER INFORMATION: PCR Primer  
290 <400> SEQUENCE: 7  
291 gagaggatcc ttaggtgtca attttatcct gc 32  
294 <210> SEQ ID NO: 8  
295 <211> LENGTH: 29  
296 <212> TYPE: DNA  
297 <213> ORGANISM: Artificial Sequence  
299 <220> FEATURE:  
300 <223> OTHER INFORMATION: PCR Primer  
302 <400> SEQUENCE: 8  
303 gagacatatg ttatcagagc aggttcagc 29  
306 <210> SEQ ID NO: 9  
307 <211> LENGTH: 32  
308 <212> TYPE: DNA  
309 <213> ORGANISM: Artificial Sequence  
311 <220> FEATURE:  
312 <223> OTHER INFORMATION: PCR Primer  
314 <400> SEQUENCE: 9  
315 gagaggatcc ttaggtgtca attttatcct gc 32  
318 <210> SEQ ID NO: 10  
319 <211> LENGTH: 22  
320 <212> TYPE: DNA  
321 <213> ORGANISM: Artificial Sequence  
323 <220> FEATURE:  
324 <223> OTHER INFORMATION: PCR Primer  
326 <400> SEQUENCE: 10  
327 gagacatatg ttgcaaaagc aa 22  
330 <210> SEQ ID NO: 11  
331 <211> LENGTH: 29  
332 <212> TYPE: DNA  
333 <213> ORGANISM: Artificial Sequence  
335 <220> FEATURE:  
336 <223> OTHER INFORMATION: PCR Primer

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338 <400> SEQUENCE: 11  
339 gagactcgag atgcgtttt ttggcaccg 29  
342 <210> SEQ ID NO: 12  
343 <211> LENGTH: 29  
344 <212> TYPE: DNA  
345 <213> ORGANISM: Artificial Sequence  
347 <220> FEATURE:  
348 <223> OTHER INFORMATION: PCR Primer  
350 <400> SEQUENCE: 12  
351 gagactcgag acccagagaa gaacttacg 29  
354 <210> SEQ ID NO: 13  
355 <211> LENGTH: 30  
356 <212> TYPE: DNA  
357 <213> ORGANISM: Artificial Sequence  
359 <220> FEATURE:  
360 <223> OTHER INFORMATION: PCR Primer  
362 <400> SEQUENCE: 13  
363 gagaggatcc ttaagctcgatgttaccag 30  
366 <210> SEQ ID NO: 14  
367 <211> LENGTH: 27  
368 <212> TYPE: DNA  
369 <213> ORGANISM: Artificial Sequence  
371 <220> FEATURE:  
372 <223> OTHER INFORMATION: PCR Primer  
374 <400> SEQUENCE: 14  
375 gagacatatgt ttgcaaaagc aatttgc 27  
378 <210> SEQ ID NO: 15  
379 <211> LENGTH: 31  
380 <212> TYPE: DNA  
381 <213> ORGANISM: Artificial Sequence  
383 <220> FEATURE:  
384 <223> OTHER INFORMATION: PCR Primer  
386 <400> SEQUENCE: 15  
387 gagactcgag taacttaaaa agttgatcat c 31  
390 <210> SEQ ID NO: 16  
391 <211> LENGTH: 28  
392 <212> TYPE: DNA  
393 <213> ORGANISM: Artificial Sequence  
395 <220> FEATURE:  
396 <223> OTHER INFORMATION: PCR Primer  
398 <400> SEQUENCE: 16  
399 gagactcgag ctggccactg ctcaatct 28  
402 <210> SEQ ID NO: 17  
403 <211> LENGTH: 30  
404 <212> TYPE: DNA  
405 <213> ORGANISM: Artificial Sequence  
407 <220> FEATURE:  
408 <223> OTHER INFORMATION: PCR Primer  
410 <400> SEQUENCE: 17

VERIFICATION SUMMARY  
PATENT APPLICATION: US/09/830,026B

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Input Set : A:\UOK532.ST25.txt  
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L:10 M:270 C: Current Application Number differs, Replaced Current Application Number  
L:11 M:271 C: Current Filing Date differs, Replaced Current Filing Date